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A Review of the Interactions and Side Effects of Various Medications With Alcohol

Prepared by

C. Samuel Mullin, M.D., F.A.P.A.

Division of Alcoholism
Massachusetts Department of Public Health

First Edition
1986

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FOREWORD

Individuals suffering from the illness of alcoholism often have medical complications related to their alcoholism. They also, like anyone else, experience a wide range of medical disorders. A wide variety of medications is available for the treatment of alcoholism and the host of medical disorders. Care in prescribing medications is essential since alcohol, sometimes even in moderate amounts, impairs the effectiveness of many medications and enhances the discomforts and dangers of their use.

This booklet reviews the drugs customarily used for major psychiatric and medical conditions along with their side effects and interactions with alcohol. This succinct and relatively nontechnical account of drug and alcohol interactions will be especially valuable for workers in the field of alcoholism. It can also be useful to the moderate alcohol drinker, or to the concerned family of the drinker who is on medications.

Familiarity with and sensitivity to the potential dangers of alcohol and drug interactions by treatment providers will be beneficial to the general care of alcoholic and nonalcoholic patients.

Edward Blacker, Ph. D.

Director, Division of Alcoholism

Massachusetts Department of Public Health

INTRODUCTION

This booklet includes brief sections on the use of medication in the treatment of the alcoholic who suffers from undue anxieties, depression, and insomnia. It also includes a review of medications used in the treatment of various medical conditions and how these drugs interact with alcohol. Finally, the booklet also discusses the use of disulfiram and lithium in the treatment of alcoholism and the use of medications in the ambulatory treatment of the withdrawal state.

The information contained in this booklet is intended for the use of:

- Alcoholism counselors serving in clinics, detoxification facilities, halfway houses and hospitals - and those whom they counsel.
- Nurses and other patient care persons in clinics, hospitals, and detoxification centers.
- Physicians in office and hospital practice who may wish to provide themselves and their patients with information about the interaction of alcohol and the medications prescribed.
- The concerned family member or friend.
- The layman interested in understanding the interactions of medications and alcohol.
- The person with a personal alcohol problem.

SECTION I. PSYCHOLOGICAL STATES

A. ALCOHOLISM and ANXIETY MEDICATIONS - AN INTRODUCTION

The Outpatient Use of Anti-anxiety Medication in Alcoholism.

Many workers in the field of alcoholism believe that the use of anti-anxiety medications (sedatives, tranquilizers) is rarely justified in the treatment of alcoholics except in the case of severe alcohol withdrawal. It is felt that prescribing pills distracts from the fundamental task of changing the thinking and behavior necessary for achieving enduring sobriety. Most important is the concern that a lasting dependency on sedative medication may develop. These concerns are generally valid, but there are situations when the temporary use of anti-anxiety medications, under medical supervision, is justified. The following are examples of several outpatient situations:

Situation a. Ambulatory alcohol withdrawal. A drinker manifests many of the usual symptoms of withdrawal: nervousness, shakiness, depression, headache, loss of appetite, and insomnia, but hospitalization or admission to a detoxification facility is either not indicated, not possible, or refused. The physician believes that without fairly immediate relief, the drinker will resume or continue drinking, and the opportunity to engage him or her in treatment of the alcoholism will be lost. There might also be concern about the possibility of increasingly severe withdrawal symptoms. In view of these circumstances, the use of a sedative medication may be indicated. If so, the drinker should be told that the use of the sedative is only a temporary measure. Only enough sedative medication to last until the next visit to the physician will be prescribed, and there will be no refill authorization. The next visit to the physician should be in two or three days. The patient will, of course, be informed that continued drinking even in moderate amount will result in an additive impairment of alertness and coordination, and that driving a vehicle under these circumstances is absolutely contraindicated. Ideally, a concerned relative or friend should be available to assist the patient. The most appropriate medication to use might be one of the shorter acting benzodiazepines, e.g., lorazepam (Ativan), oxazepam (Serax) or the intermediate longer-acting chlordiazepoxide (Librium).

Situation b. Acute stress situations. Occasionally, sedative medications may be prescribed for an alcoholic patient who is experiencing some acute personal or family crisis, such as bereavement with extreme reaction. The alternative to the use of a sedative is the likely resumption of alcohol abuse. The selected sedative is usually a benzodiazepine (e.g. Serax, Librium, Valium) which should be provided in limited quantity and with no refill authorization. Further use should be determined by a physician.

Situation c. Phobias and panic attacks. Phobias are characterized by incapacitating and "irrational" anxiety in the presence of certain objects and situations; e.g., crowds, wide open spaces or, conversely, enclosed areas, certain social situations, e.g., "stage fright," animals, storms, flying in a plane, or riding in an automobile. The problem drinker tends

to use alcohol unwisely when confronted with a phobic object or situation. Nondependency-producing medications such as certain antidepressants, e.g., phenylzine (Nardil) or imipramine (Tofranil), although not primarily anti-anxiety medications, are often effective in preventing phobic episodes.

Acute attacks of panic may occur without apparent provocation. Again, alcohol may be used by the alcoholic in an attempt to control the episode. However, certain benzodiazepine sedatives, particularly alprazolam (Xanax) are more effective and more appropriate. Recently, clonazepam (Clonopin), a benzodiazepine derivative used primarily in the treatment of certain epileptic conditions, has been found useful in the treatment of panic states[1].

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[1] Beaudry P. et al., Clonazepam in the treatment of patients with recurrent panic attacks. J.Clin.Psychiatry 47, Feb. 1986.

B. ALCOHOL and SPECIFIC ANTI-ANXIETY MEDICATIONS
(Also known as minor tranquilizers, sedatives and anxiolytics)

The Benzodiazepines.

These are the most commonly used sedative medications. They include alprazolam (Xanax), chlordiazepoxide (Librium), chlorazepate (Tranxene), diazepam (Valium), halazepam (Paxipam), lorazepam (Ativan), oxazepam (Serax), and prazepam (Centrax). The foregoing are used primarily as daytime sedatives. Other benzodiazepines are used primarily as sleep medications. (See section on "ALCOHOL and ANTI-INSOMNIA MEDICATIONS"). The benzodiazepines are at least as effective as barbiturates in producing daytime sedation and nighttime sleep but have fewer side or adverse effects. They have a wide margin of safety, and suicide is uncommon with these sedatives unless combined with large amounts of alcohol. Some have muscle relaxant and anticonvulsant effects, especially diazepam (Valium).

Side and Adverse Effects. The benzodiazepines are less likely to produce psychological and physical dependence than barbiturates and most other sedatives. However, taking benzodiazepines daily for weeks or months, even in moderate therapeutic doses, can result in dependence and more or less severe withdrawal symptoms, if the medicine is stopped abruptly. Withdrawal symptoms can include anxiety, tremulousness, depression, marked insomnia, muscle cramping, and in rare cases, hallucinations and delusions. These reactions are more likely to occur when the shorter acting benzodiazepines are used, e.g., oxazepam (Serax) or lorazepam (Ativan). Diazepam (Valium) is more likely to produce dependency than chlordiazepoxide (Librium) and most other benzodiazepines. This may be because diazepam is very quickly absorbed and in some people produces a rather sudden feeling of well being - the so called "Valium rush" or cocktail effect. Paradoxically, diazepam (Valium) in doses of three to four 10 mg tablets has been associated with sudden onset of severe depression with suicidal tendencies. There have also been rare reports that the benzodiazepines, especially Valium, can evoke reactions of excitement and rage. Valium, and probably other benzodiazepines, tend to impair the memory slightly, e.g., digit recall may be impaired for a few hours, even on therapeutic doses. Presumably, this effect would be more noticeable in the elderly. Benzodiazepines can potentiate the anticonvulsant medication, dilantin - thus calling for lower doses to avoid dilantin toxicity. The benzodiazepines also increase the effects of anti-clotting medications, thus increasing the possibilities of internal bleeding unless the anticoagulant dose is reduced.

Interaction with Alcohol. When a "social" drinker on moderate doses of benzodiazepines consumes a few drinks, the blood level of the benzodiazepines rises somewhat. Excess sedation and an increased level of intoxication are possible outcomes of the mixture. These added effects are due in part to the fact that the alcohol slows down the action of the enzymes that normally serve to break down (metabolize) the medication chemically. The augmented effect is more likely to be apparent with

diazepam than chlordiazepoxide.[2] Benzodiazepines alone, even when taken in large amounts are not likely to cause death in a healthy person. However, when high therapeutic doses of benzodiazepines are mixed with intoxicating levels of alcohol, this combination becomes dangerous, especially in the case of the "naive" drinker, who has not yet developed significant chemical tolerance for alcohol and benzodiazepines. Chronic heavy drinkers and alcoholics may develop a cross tolerance for benzodiazepines (and alcohol) and thus require higher doses than non-alcoholics to achieve desired levels of sedation, e.g., in the case of detoxification treatment. Valium, and possibly other quick-acting benzodiazepines, can be dangerous if taken just before driving. A single therapeutic dose of Valium may cause a peak impairment of coordination in about 20 minutes. Although this impairment effect may be moderate with Valium taken alone, when the drug is combined with even modest amounts of alcohol, the impairment is distinctly heightened. This is especially so in the case of the "inexperienced" Valium user who has not yet developed tolerance for the drug.

The Barbiturates.

These include amobarbital (Butisol), pentobarbital (Nembutal), phenobarbital (Luminal), and secobarbital (Seconal). Barbiturates were the most widely used sedatives in the world until the development, about 25 years ago, of the benzodiazepines (e.g., Librium, Valium). Barbiturates are now rarely used as outpatient sedatives (or hypnotics) except occasionally in connection with the treatment of epileptic symptoms, or as a pre-anesthetic. They are still fairly widely used, however, for "recreational" purposes and are strongly dependency producing. They have a low therapeutic-to-toxic ratio. In other words, the dose that is effective for sedation may not be far from the dose that is dangerous.

Side Effects. Daytime lethargy following nighttime use is relatively common, especially among the elderly and those with alcohol liver disorders. Infrequent but noteworthy side effects include skin rashes, joint and muscle pains and gastrointestinal symptoms.

Interaction with Alcohol. Especially in the case of the nonalcoholic drinker, barbiturates and alcohol when combined may be synergistic, i.e. the sedative effect of the combination is greater than the sum of each substance. Here, the lethal dose of a barbiturate may be 50% less when there is substantial alcohol in the body than when the drug is used alone. Conversely, the chronic abuse of alcohol over the years (alcoholism) causes changes in the body chemistry that may allow the alcoholic to tolerate large doses of barbiturates. This cross tolerance

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[2]The different forms of the benzodiazepines vary widely with respect to the length of time the medication and its active breakdown products (metabolites) remain in the body. This variation in the longevity of the drug in the body is usually expressed in terms of the "half life" of the drug. Oxazepam (Serax), lorazepam (Ativan), and alprazolam (Xanax) have short half lives of about 10 to 20 hours. Chlordiazepoxide (Librium) is intermediate at about 12 to 50 hours. Diazepam (Valium) has a long half life, from 20 to 90 hours.

extends to other drugs also used as anesthetics and can cause difficult problems for anesthetists and surgeons.

Less Frequently Prescribed Sedatives

Meprobamate. Sedatives of this class are now more apt to be used for "recreational" purposes than for therapy. They include Bama, Bamate, Deprol, Equanil, Equagesic, and Miltown. As a sedative, meprobamate is not as effective as the benzodiazepines. It has a high dependency and addiction rate. Its use appears to have a deleterious effect on the fetus when used by the mother. Meprobamate increases the effects of anticoagulant medication and is to be especially avoided by the patient with alcohol liver disease. Alcohol and meprobamate when mixed can potentiate each other's sedative effects. This combination can be very dangerous.

Beta-Blockers. These medications, e. g. propranolol (Inderal), although not primarily sedatives (see section on "HEART MEDICATIONS"), may be useful in treating certain panic states associated with alcohol abuse, especially during the withdrawal period. Propranolol may also be of some value in reducing the hand tremors often manifested by the non-drinking alcoholic.

Hydroxyzine (Atarax, Vistaril). This medication is an "anti-histaminic" and is useful in the treatment of some allergic conditions. It has also been widely used as a minor tranquilizer and is not dependency producing. This medication has been successful in the treatment of moderately severe alcohol withdrawal states. It has few important side effects, although dry mouth, and rarely, difficult urination may be experienced. As might be expected, because of its sedating effects, hydroxyzine can increase the intoxicating effects of alcohol.

Buspirone (Buspar). This medication is not yet approved by the FDA but has considerable promise. It is an effective anti-anxiety medication. It does not induce euphoria (a "high") that might encourage dependency. It does not seem to impair driving skills in average doses. It has fewer side effects than most anti-anxiety drugs. Very importantly, in average doses, it does not seem to interact with alcohol to decrease alertness and driving skill beyond the impairment due to alcohol alone.

C. ALCOHOL and INSOMNIA

Alcohol-dependent persons often complain of poor sleep. This insomnia is usually more prominent during periods of active drinking and for a few days or even weeks after heavy drinking has stopped. This impaired sleep is due primarily to the toxic effects of alcohol on the brain, augmented by the inevitable stress of the alcoholic life. A single drink may help induce sleep in the somewhat anxious non-alcoholic person. However, the alcoholic person often says that sleep is impossible unless substantial alcohol is consumed before bedtime. One or more drinks may indeed induce sleep sooner than if no drinks were taken. However, this practice results in a kind of drugged sleep that disturbs normal sleep patterns of the brain and leads to restless turnings and awakenings later in the night that may not be remembered, followed by an aggravation of hangover symptoms in the morning. An early start on the day's drinking, for the purpose of relieving this morning misery, is commonplace. While sleep often improves markedly after a few days of abstinence from alcohol, the general quality of sleep in some cases may be impaired for months after consistent sobriety has been achieved.

The Use of Sleep Medications in Alcoholism

The best treatment for the chronic insomnia of the problem drinker is abstinence from alcohol, not sleep medications. However, the temporary use of a hypnotic may be justified in the following situations: 1) the drinker's anxiety about "more sleepless nights" is acute and likely to result in the continuation of bedtime drinking, especially if the insomnia is a part of the alcohol withdrawal condition; 2) it seems probable that the drinker will lose a ripe opportunity to become engaged in treatment for the basic problem - the alcohol abuse, unless expeditious relief is offered for the insomnia. The provider of the sleep medication should emphasize that the use of these aids is a temporary expedient and should prescribe a quantity not exceeding a one to three days supply with no refill authorization. There should, of course, be a warning of the dangerous consequences of drinking while driving when on these medications. The provider should assure that there <u>is</u> expeditious follow through to engage the drinker in treatment for the basic problem. Future use of the hypnotic will depend on circumstances, but there should always be an emphasis on limited amounts and cautious use.

D. ALCOHOL and ANTI-INSOMNIA MEDICATIONS
(Also referred to as hypnotics, somnifacients, sleep medications)

The Benzodiazepines.

They include flurazepam (Dalmane), temazepam (Restoril), triazolam (Halcion), and are the most widely used sleep medications. They are of the same family as the anti-anxiety drugs, chlordiazepoxide (Librium) and diazepam (Valium). They work as sleep medications because they exploit the drowsiness potential of all benzodiazepines. They have more of this side effect than the benzodiazepines that are used primarily as daytime sedatives. (See section on "ANTI-ANXIETY MEDICATIONS.")

Actions and Side Effects. Dalmane has a very long half life, and traces can be detected in the blood for up to several days. This prolonged action may cause some degree of drowsiness during the daytime. If the medication is taken nightly for several days, there will be a gradual accumulation of the drug in the body until a level steady state is reached in about a week. If the drug is then discontinued, it may take several days to disappear from the body. Thus, after the first few days of use there may be no need for continuing nighttime doses in order to assure sleep. Abrupt discontinuance does not usually result in significant withdrawal symptoms, as might sometimes be expected of the shorter-acting medications. Restoril has a short half life of about 15 hours. Side effects may be similar to Dalmane but there is less possibility of morning grogginess. Halcion is the most recently marketed of the benzodiazepine medications. It acts more rapidly than Dalmane and Restoril. Also it has a shorter half life than either of its related drugs. There is less likelihood of a hangover effect. However, its very short half life may result in premature awakening. Other effects are not common but may include dizziness, confusion, and depression. In very rare instances, Restoril and Halcion may cause agitation, panic, and sleep walking.[3]

Interaction with Alcohol. When flurazepam (Dalmane) is combined with a few drinks at bedtime, the grogginess factor is considerably aggravated and in the morning the user may appear more hung over than warranted by the amount of alcohol consumed. These reactions are less with temazepam (Restoril) and least with triazolam (Halcion). (Refer also to the section on "ANTI-ANXIETY MEDICATIONS" relative to the interaction of benzodiazepines with alcohol).

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[3] Regestein, R., Reich P. Agitation During Treatment with Newer Hypnotic Drugs. J. Clin. Psychiatry 46:7-July 1985.

Other Less Commonly Used Sleep Medications

Chloral Hydrate (Aquachloral, Colidrate, Nostec, Orandrate). This sleep medication is time tested, quick acting, cheap, and effective. It has a pungent smell and a horrid taste. It is relatively safe but probably less so than most benzodiazepines. Chemically it is a relative of alcohol and can ease the withdrawal effects of a binge. However, chloral hydrate mixed with a few drinks constitutes the "Mickey Finn" of adventure literature. The "clout" of this mix is probably greater than with most hypnotics, with the possible exception of the barbiturates. Chloral hydrate can irritate the stomach and should not be used when alcoholic gastritis is suspected.

Hydroxyzine (Atarax, Vistaril). These antihistaminic medications are safe but not very effective as sleep medications although often used for this purpose. (See section on "ANTIHISTAMINICS.")

Barbiturates (Butisol, Luminal, Nembutal, Secobarbital). These sedatives are effective hypnotics but not very safe - especially when mixed with alcohol. (See section on "ANTI-ANXIETY MEDICATIONS.")

Tryptophan. Tryptophan is an essential amino acid that can stimulate in the brain the production of serotonin, a sleep inducing chemical. After years of inconclusive research on the subject, it now appears that the appropriate administration of this substance can induce and maintain a normal pattern of sleep in many insomniacs both acute and chronic.[4] The great advantages of tryptophan are that there are no side effects of consequence, no development of tolerance, or chemical dependency. Milk contains very small amounts of tryptophan, which may account for the sleep-inducing benefit reported by those having a glass of warm milk at bedtime.

Other Drugs

Ethylchlorvynol (Placidyl). The sleep-inducing effects of this hypnotic are less predictable than the benzodiazepine (e.g., Dalmane, Restoril) or even the barbiturates or chloral hydrate. Dizziness, blurring of vision, unpleasant taste, and indigestion are fairly common. It tends to increase depression in persons who are already depressed. Alcohol greatly increases the sedative and depressant effects of this medication.

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[4] Schneider-Helmert, Spinweber C. Evaluation of L-tryptophan for Treatment of Insomnia: a Review. Naval Health Center: Report No. 84-4 Jan. 1984.

Glutethimide (Doriden). This hypnotic has a potential as great as the barbiturates for producing dependency and addiction. It also has a low toxic-to-therapeutic ratio. When alcohol and Doriden are mixed in the body, the level of alcohol in the blood may increase as much as 10%. Doriden, alone may depress the action of the heart muscle already damaged by the chronic use of alcohol (cardiomyopathy). Doriden overdose presents special difficulties in management. Doriden, combined with codeine (PAC's) is an illicit "recreational" combination that has caused many deaths. There is no legitimate reason for its use today.

Methaprylon (Noludar). This drug closely resembles Doriden (above) in chemical structure and toxic potential.

Methaqualone (Mequin, Quaalude, Sopor). "Ludes" is the street name for methaqualone. The manufacture of this drug has been discontinued, but residual supplies are still available illegally.

E. ALCOHOL and DEPRESSION

The alcoholic person may suffer from one of the following types of depression, or from a combination of types:

1. Reactive or "situational" depression. This form of depression represents an understandable reaction to some important loss, either actual or feared, e.g., job, spouse, friends, money, health, or self esteem. Such losses are, of course, frequent concomitants or consequences of drinking excesses. Antidepressants are rarely indicated here.

2. Depressive neurosis (Dysthymic Disorder). This kind of depression may be chronic or intermittent. It is usually assumed to be related to neurotic conflicts operating more or less beyond conscious awareness. Relief drinking leading to alcohol abuse is sometimes associated. Counselling and psychotherapy plus treatment directed expressly to the alcohol excesses is indicated here, but generally, antidepressants are not indicated. However, if any doubt exists, a trial of antidepressants may be appropriate.

3. "Alcoholic Melancholia". This is a relatively uncommon form of depression that appears to be related primarily to the toxic effects of an episode of severe, prolonged drinking, although psychological factors may contribute. The condition occurs toward the end of a binge. The depression is profound and manifested by agitation and expressions of guilt and unworthiness. Suicidal impulses and gestures are common. This "melancholia" is often the basis for the suicide attempt that occurs in the jail cell where the alcoholic has been confined for obstreperous behavior. Remarkable features of this condition are the rapid clearing of the depression when the person sobers up and the fact that withdrawal symptoms are not devastating. There is usually no memory of the episode. Sedatives may be indicated for the agitated behavior but antidepressants are of no value.

4. "Endogenous" or "primary" depression and related manic conditions (the "high" phase). These conditions are considered to be primarily a physical (i.e., biochemical) disorder, affecting the areas of the brain that regulate emotional expression, although psychological factors may contribute to the onset and continuation of the illness.

a. The depressive side. Here the depression is characterized by pervasive melancholy, lack of energy and interest, preoccupation with bodily symptoms, irrational guilt feelings, varying degrees of social withdrawal, and impaired appetite and sleep. The degree of depression may be either profound and incapacitating or of a moderate intensity that allows the subject to continue to function more or less adequately, although without zest. Often there are no obvious stresses or losses that would account for the onset and severity of the condition. It is this apparent absence of sufficient external cause that should suggest an endogenous depression. A family history of similar emotional illnesses increases the likelihood that the illness is endogenous, i.e., not primarily psychological in origin.

b. The manic side. (See also the section on "LITHIUM.") Depressive episodes may alternate with inexplicable episodes of seeming euphoria lasting for weeks or months. Sometimes only the "highs" appear and there is no alternation with serious "downs" such as described above. The "high" presentation may be characterized by a high, labile mood, often with a touch of grandiosity; restless, hectic energy, non-stop talkativeness, and apparently little need for food or sleep. Lesser forms of this manic phase are common. The individual is not out of control and may have some recognition that he/she is "flying." This latter condition is called "cyclothymia" or "hypomania."

In examining the role of drinking in patients with primary manic-depressive conditions, care must be taken not to misinterpret the drinking as being a primary alcoholic condition, because the drinking may be a mask for a primary manic-depressive condition.

The treatment of manic depressive disorders is primarily pharmacological, e.g., the use of lithium, especially if the manic element is prominent. If the patient is able to cooperate with treatment, marked improvement or remission of the basic disorder and the associated problem drinking can be expected. Unlike many recovering alcoholics, the recovering manic depressive usually experiences no unusual desire for alcohol. (See section on "ALCOHOLISM and LITHIUM TREATMENT".)

F. ALCOHOL and ANTIDEPRESSANTS

The Tricyclicals and Related Antidepressants.

The most commonly used antidepressants are the "tricyclicals," a term that refers to the three rings of the basic molecular structure of the drugs. They include imipramine (Tofranil, Janimine), amitriptyline (Elavil, Endep), nortriptyline (Aventyl, Pamelor), doxepin (Sinequan, Adapin), protriptyline (Vivactil), and desipramine (Norpramine, or Pertofrane). Somewhat more recent antidepressants include trimipramine (Surmontil), amoxipine (Asendin), maprotiline (Ludiomil) and trazadone (Desyrel). Two other promising antidepressants are waiting in the wings: bupropion (Wellbutrin) and mianserin (Tolvon).

Side Effects. Sedation is common and may or may not be advantageous, depending on the clinical needs of the patient. The antidepressants vary with respect to their sedative potential. Least sedative are desipramine, nortriptyline, protriptyline, and the newest entries, bupropion and mianserin. Most sedative in action are amitriptyline, doxepin, maprotiline, and trazadone. The others fall somewhere between.

Anticholinergic effects[5] are occasional with most drugs of this class and include dryness of the mouth, blurred vision, dilated pupils, rapid heartbeat, difficulty urinating, constipation, and (rarely) difficulty with erection and/or ejaculation. These side effects may clear up with time or reduced dosage or by substituting an antidepressant with fewer side effects. Most likely to cause such side effects are imipramine, trimipramine, and amitriptyline. Least likely to cause such effects are desipramine, doxepin, amoxipine, trazadone, bupropion, and mianserin.

Other side effects include postural hypotension, i.e., an abrupt drop in blood pressure that occurs upon suddenly standing, resulting in dizziness and possible fainting. The effect of some of these antidepressants on the heart may be paradoxical. In some cases the medication has a favorable effect on certain disorders of rate and rhythm. On the other hand, an antidepressant can worsen existing rate and rhythm disturbances in unusual cases. Very rarely, these antidepressants might produce a toxic confusional state with disorientation and hallucinations - symptoms that might be confused with an alcoholic psychosis. These antidepressants lower the threshold for epileptic spells in the predisposed person. (The new bupropion has a higher risk in this connection than most antidepressants). A "sweet tooth" that causes unwanted weight gain is a fairly common consequence of antidepressant treatment.

Interaction with Alcohol. Heavy drinking over several months diminishes the effectiveness of average doses of antidepressants. Drinking alcohol while taking these antidepressants may cause increased sedation, so that the person seems more inebriated than the quantity of liquor consumed would appear to warrant. The more sedation the particular

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[5] Anticholinergic means the ability to retard the activity of organs that receive their nerve impulses through the parasympathetic (i.e. "involuntary") nervous system.

antidepressant causes, the more intoxicated the drinker appears, other factors being equal. The ingestion of alcohol can increase the blood pressure lowering effect of these medications and may cause the heart to beat irregularly. Heavy drinking while on one of these medications increases the possibility of such irregularities occurring. Epileptic tendencies may be aggravated by a combination of alcohol and an antidepressant.

The Monoamine Oxidase Inhibitors (MAO Antidepressants).

These are a group of drugs that share an ability to block the breakdown in the body of certain vital chemicals called "amines" that occur naturally in the body. These MAO's include phenylzine (Nardil), isocarboxide (Marplan), and tranylcypromine (Parnate). Like the tricyclicals (see previous section), their antidepressant benefit may not be apparent for days or weeks after the first dose. They are now used less frequently as antidepressants. This is so because they are not generally as effective in treating depression as the tricyclicals, although there are many individual case exceptions. Furthermore, they are incompatible in the body with a large number of foods and wines containing tyramine and give rise to toxic symptoms as described below. They are, however, often helpful in the treatment of certain phobias. Phenylzine (Nardil) is the commonly used anti-panic and anti-phobia MAO medication. (See section on "ALCOHOL AND ANXIETY MEDICATIONS.") As previously mentioned, a serious drinking problem may be related occasionally to the effort of the drinker to relieve these abnormal fear spells through the use of alcohol. Treatment of the phobic condition with an MAO inhibitor may eliminate the drinking problem.

Side Effects. Most patients on MAO's experience little or no unwanted effect. Postural hypotension may occur occasionally and cause dizziness, faintness, or fainting, especially in the elderly. Other occasional side effects, collectively referred to as an "anticholinergic" reaction, include increased heart rate, dry mouth, blurred vision, constipation, delay in initiating urination, and (rarely) delayed ejaculation. A few rare cases of impaired orgasm in women have been reported. Very rarely an MAO inhibitor may aggravate the very symptoms it is targeting, e.g., depression, irritability, and insomnia. Certain foods containing tyramine, when ingested along with an MAO inhibitor, may cause a rise of blood pressure associated with severe headache, pounding heartbeat, weakness, and vomiting. These tyramine-containing foods include many cheeses, chicken livers, smoked meats, pickled products, herring, broad beans, overripe fruit, and meat extracts. Over-the-counter cough, cold, and nasal decongestion medications containing forms of epinephrine should be avoided. The combination could cause a sharp blood pressure rise.

Interaction with Alcohol. MAO inhibitors retard the chemical breakdown and clearance of alcohol in the body causing intoxication to be greater than expected. The MAO inhibitors interact with certain alcoholic beverages containing tyramine to cause varying degrees of the hypertensive reaction described above. Especially to be avoided are red wines (particularly Chianti), sherry, vermouth, and many beers, especially dark beers.

G. ALCOHOL and MAJOR TRANQUILIZERS (ANTI-PSYCHOTIC MEDICATIONS)
(Also known as neuroleptics)

These medications are used mainly in the treatment of psychotic disorders other than depressions, e.g., schizophrenias. They include the phenothiazine group such as cholorpromazine (Thorazine), promazine (Sparine), trifluperazine (Stelazine), fluphenazine (Prolixin), perphenazine (Trilafon), mesoridazine (Serentil), triflupromazine (Vesprin), thioridazine (Mellaril), and prochloperazine (Compazine). Compazine is also used as an antiemetic agent, to control nausea and vomiting. The antipsychotics also include the butyrophenone group such as haloperidol (Haldol), the thioxanthines such as chlorprothixine (Taractan) and thiothixine (Narvane), the dibenzodiazepines such as loxapine (Loxitane), and the dihydroindolols such as molidone (Moban). All of the above drugs have been prescribed for schizophrenia or other psychoses. Some of them, however, are occasionally used as a tranquilizing agent for the non-psychotic person. Haloperidol (Haldol) is one such example and can be quite effective in calming down the inebriated, agitated, combative patient. Other major tranquilizers are not recommended for this purpose as a rule, since, unlike haloperidol, most of them have a potential for inducing a serious drop in blood pressure and for lowering the convulsive seizure threshold.

Side Effects. The side effects of the major tranquilizers (neuroleptics) are fairly common and sometimes dramatic and dangerous. They are occasionally mistaken for evidence of alcoholic intoxication. The commonest serious adverse effects are the so-called "extrapyramidal" symptoms. One form is called "parkinsonism" and is characterized by tremors, rigidity of movement, difficulty initiating movements, a masklike facial expression, and slurred speech. "Dystonia" is another adverse effect that occurs in the first days of treatment and includes sharp spasm of the neck and back muscles or of one or more of the extremities resulting in grossly distorted postures. One of the more distressing of the dystonic reactions is the "ocular-gyric crisis." Here the eyeballs roll back in the head and cannot be lowered voluntarily. Fortunately, these spasms can be relieved by taking Benadryl (diphenhydramine), a histaminic, or Cogentin (benztropine), an anticholinergic drug. "Akasthesia" describes the condition of the patient who is unable to sit still and is constantly moving and shuffling because of the effect of the prescribed drugs. This effect may be misinterpreted as reflecting emotional agitation. "Tardive dyskinesia" is the most serious adverse effect of these medications. It usually starts rather late in the course of treatment with a major tranquilizer. It is manifested by involuntary movements of chewing, lip smacking, tongue thrusting, and jerking of the neck and extremities. These effects may disappear during sleep and may be aggravated by emotional stress. In the early stages of tardive dyskinesia, the condition is often misdiagnosed as "hysteria." It is often difficult to treat successfully. Recently, the use of choline, a safe substance sold in health food stores, has been found helpful. Occasional side effects other than the extrapyramidal symptoms described above include "anticholinergic" symptoms such as dryness of the mouth, blurred vision, rapid heartbeat, difficulty in urination, and constipation. Unduly lowered blood pressure is a common side effect of major tranquilizers. These drugs may increase susceptibility to convulsions.

Interaction with Alcohol. Major tranquilizers increase the intoxicating effects of alcohol. Alcohol can increase the sedative effects of the phenothiazines. As mentioned above, many major tranquilizers have blood pressure-lowering effects. When mixed with alcohol this hypotensive effect is increased. Dizziness and fainting may occur. Most major tranquilizers increase the liability of seizures (e.g. convulsions). Withdrawal from heavy amounts of alcohol is also sometimes associated with seizures. Therefore, these medications should not ordinarily be used in the treatment of alcohol withdrawal. Many major tranquilizers tend to encourage the development of heartbeat irregularities. Since binge drinking is often associated with similar disturbances of heart rhythm, the combination can be dangerous. Chronic alcohol abuse is often associated with liver disease and these major tranquilizers have a potential for being hepatotoxic (causing liver damage). Since both alcohol and these drugs are metabolized in the liver, caution should be observed in prescribing these drugs when there is a possibility of liver disease.

SECTION II. MEDICAL CONDITIONS

A. ALCOHOL and ANALGESICS
(Anti-pain Medication)

Non-prescription

Aspirin (acetylsalicylic acid) and related medications. Aspirin is an extraordinarily effective, inexpensive pain reliever. It also helps to relieve inflammation and fever. It is an ingredient of a great many "over-the-counter" (OTC) medications. Many of these medications contain caffeine.[6] The caffeine ingredient increases the cost of the medication and is of dubious value in most cases. Aspirin medications include plain aspirin (Bayer aspirin), Alkaseltzer, Anacin (c), APC's with or without Demerol, Arthritis Pain Formula, Aspergum (c), Bufferin, Cope (c), Excedrin (twice as much "c" as the others), Emprazil (c), Fiorinal (c) which contains a barbiturate and therefore is potentially dependency producing, Midol (c), and Vanquish (c). Dolobid is a new analgesic related to the salicylic acid group like all of the above, although clinically distinctive in some respects. It is stronger, its pain relief effect lasts longer, and its side effects are less prominent. Ibuprofen (Motrin, Rufen) an anti-inflammatory drug has recently been approved for nonprescription use as a minor analgesic. The over the counter names are Advil and Nuprin, which come in a relatively low-dose 200 mg tablet.

Side Effects of Aspirin and related drugs. These are not common when these drugs are taken in moderate doses, and intermittently. However, when used in high doses over time, e.g., for the treatment of chronic arthritis, side effects may be prominent. Side effects could include skin rash, nausea, heartburn, ringing in the ears and moderate drowsiness. "Silent" bleeding into the stomach wall of the aspirin user may occur. Continued use may cause iron deficiency anemia. More serious bleeding may occur when aspirin is combined with anticoagulant medication.

Interaction with Alcohol. Aspirin tends to irritate the stomach, and so does alcohol. The combination of heavy drinking and high doses of aspirin increases the possibility of bleeding from the stomach. This bleeding may be mild and unnoticed, or there may be the occasional appearance of black, tarry-looking stools indicating bleeding from the bowel, or in very rare instances, actual hemorrhage. Bleeding is more apt to occur when alcoholic liver disease is present. This is because liver disease tends to impair clotting mechanisms.

Acetaminophen. This chemical is an active metabolite of phenacetin. It is an essential ingredient of Arthralgen, Datril, Excedrin (c) (which also contains aspirin), Darvocet, Phenaphen, Tylenol, Valdolol, and other drugs.

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[6] The notation "c" above indicates that the medication contains caffeine. Caffeine may not be desirable for the nervous alcoholic who is having trouble sleeping and who is nursing the aftermath of a drinking episode.

Side Effects. These effects are fewer than with aspirin. They may include mild drowsiness in sensitive persons, occasionally a skin rash, and very rarely, impaired thinking and concentrating.

Interaction with Alcohol. No important interaction as a rule but the combination can sometimes cause drowsiness. However, there have been recently recorded instances of rare but serious interaction, causing liver injury.[7]

Prescription required.

Opiate and Other Narcotic Medications.[8] These include morphine[1], codeine[2], meperidine (Demerol)[2], hydromorphine (Dilaudid)[2], oxycodone (Percodan)[2], methadone (Dolophine)[2], hydrocodone (Codone, Hycodan)[2,3], tincture of brown opium (Paragoric)[3], pentazozine (Talwin)[4], propoxyphene (Darvon, SK 65, Dolocap)[4], diphenoxylate (Colonil, Lomotil)[5].

Side Effects. These may include flushed face, sweating, drowsiness, lightheadedness, nausea, unusual fatigue, constipation, difficult urination, and a sensation of being drunk. Since one of the more common side effects is constipation, Paragoric is sometimes prescribed for severe diarrhea.

Interaction with Alcohol. The effect of combining alcohol with the stronger opiates is supra-additive, i.e., the combined use of morphine and alcohol increases the effects of each drug. Alcohol and the stronger opiates are a lethal mixture. Drowsiness effects that are often experienced by the use of even the lesser narcotics are increased in the presence of alcohol in the body. Driving while drinking when on any of these medications can be disastrous. Both alcohol and opiates may damage the liver. This damage is likely to be more serious if liver disease is already present. In addition, a contaminated heroin needle may transmit a viral infection to the already compromised alcoholic liver. This combined assault may be fatal.

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[7] A recently reported study indicates that in some cases "acetaminophen, when taken in doses that are not unusual (say, a dozen regular strength tablets daily for several days or more) is capable of producing severe, and even fatal, injury in the liver primed by habitual exposure to alcohol." Harvard Medical School Health Letter, July 1986 and Annals of Internal Medicine, March 1986, pp. 399-404.

[8] The following numerals placed after the drug name indicate that the drug is a "controlled" substance assigned by the Drug Enforcement Agency (DEA) to indicate the addiction potential of the drug. The number 1 indicates the most addictive potential, and 5 the least.

B. ALCOHOL and ANTI-ARTHRITIS MEDICATIONS

Aspirin is a cheap, effective and relatively safe medication for the treatment of the less severe, "earlier" forms of rheumatoid and other kinds of arthritis and has been discussed in the section on "ANALGESICS". Other non-steroidal antiarthritic drugs are considered for patients who are not tolerant of aspirin or when aspirin does not seem to be producing desired results. Prescription required medications of this class include sulindac (Clinoril), difunisal (Dolobid), piroxicam (Feldene), ibuprofen (Motrin, Rufen), naproxin (Naprosyn), tolmetin (Tolectin), meclofenamate (Meclomen), indomethacin (Indocin), oxphenbutazone (Oxalid), and phenylbutazone (Butazolidin or "bute"). These latter two drugs are used more sparingly today because of their frequent adverse effects.

Side Effects. Unwanted effects of aspirin have been discussed in the section on "ANALGESICS." Other antiarthritic medications mentioned above may have similar unwanted effects including indigestion, impaired appetite, nausea, headaches, ringing in the ears and blurred vision. Bleeding into the gastrointestinal tract is a common adverse effect of these medications. This bleeding may be slight and unnoticed ("occult"), or may be noted in urine samples and by the presence of black "tarry" stools. Blood tests may reflect anemia and a reduction of blood clotting factors. Occasionally, there is gross hemorrhage - oral or rectal. Taking these medications with food reduces stomach upset but does not seem to reduce the possibility of bleeding. In rare instances, tolmetin may induce manic (hyperactive) behavior.

Interactions with Alcohol. All the above medications can irritate the stomach lining and so can alcohol. Drinking alcohol when on one of these drugs increases the possibility of experiencing indigestion, nausea, vomiting and diarrhea. Moderate, and especially, heavy drinking combined with the daily use of one of these medications aggravates the bleeding tendency. If alcoholic gastritis is present, there is an increased possibility of gross hemorrhage especially if there is also some degree of liver damage.

C. ALCOHOL and HEART MEDICATIONS

Digitalis-like Medications (heart stimulants). These include digitoxin (Crystodigin, Purodigin), digoxin (Lanoxin), and gitalin (Gitaligin). The main action of these drugs is to increase the strength of the heartbeat and thus treat heart failure. Digitalis medication must be prescribed very carefully. Sometimes the effective dose is not far from the toxic dose.

Side Effects. These are not common on average doses but may include nausea, impaired appetite, diarrhea, lethargy, and blurred yellow-green vision. In rare cases, digitalis may cause visual and auditory hallucinations and confusion.

Interaction with Alcohol. Alcohol can interfere with the normal breakdown of digitalis.[9] This happens because the same enzyme that metabolizes alcohol, metabolizes digitalis. This competition interferes with the normal rate of breakdown of both digitalis and alcohol, and thus a dangerous accumulation of both occurs.

Amirinone (Inocur) (heart stimulant). This is a new and very potent heart muscle strengthener that also has some blood vessel dilating effect. Amirinone usually does not affect heartbeat or rhythm. It may be safer and more effective in treating severe forms of heart failure than digitalis.

Side Effects. These may include gastrointestinal symptoms, headaches, and reduced taste and smell perception.

Interaction with Alcohol. Changes in liver-function tests have been reported, which suggest a need for caution in the case of the alcoholic patient.

Nitrates (antianginal medications). These drugs include various forms of nitroglycerine, including amyl nitrate,[10] Cardiobid, Cardizem, Cardilate, Nitrol, Nitrospan, Nitrodisc, Isordil, Peritrate, and Sorbitrate. These medications relieve or prevent anginal pain. This is accomplished by the relaxation-expansion effects these drugs have on the clogged and constricted coronary heart arteries that allow more blood and oxygen to reach the endangered areas of the heart. These nitrates are taken in various ways. When pain is present, quick-acting oral or inhalation forms are used. Slow release forms are used to prevent an anginal attack. Other modes of administration include absorption from a tablet placed under the tongue or between the gum and the cheek, or via an ointment applied to the skin, or by means of a nitroglycerine-impregnated adhesive bandage.

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[9] Frey, W., Valee, B., Digitalis Metabolism and Human Liver Alcohol Hydrogenase. Proc.Nat.Acad.Science, 77:824-7, 1980.

[10] Amyl nitrate is now rarely used to treat angina. It continues to have some vogue as an orgasm enhancer and aphrodisiac.

Side Effects. Headaches, flushing of the face, and dizziness are fairly common but usually quite transient.

Interaction with Alcohol. Dizziness is more likely to occur when alcohol is ingested along with the nitrate. Alcohol should be avoided completely in the presence of any side effects, particularly headaches. Some authorities believe that no alcohol should be consumed when taking these medications.

Procainamide (heartbeat regulator). This medicine is related to procaine - a local anesthetic. Brand names include Pronestyl, Procan and Procainamide. This medicine acts by slowing the action of the heart's electrical pacemaker.

Side Effects. These are comparatively rare but may include a mild drop in blood pressure, nausea, diarrhea, and poor appetite.

Interaction with Alcohol. None expected.

Beta Andrenergic Blockers (Beta blockers). These include atenolol (Tenormin), metoprolol (Lopressor), nadolol (Corgard), propranolol (Inderal), pindolol (Viskin), and timolol (Blocadren). These are versatile drugs. They block certain actions of the sympathetic nervous system throughout the body and thus reduce the need of the heart and small blood vessels for more oxygen and more adrenaline. The rate and the force of the heartbeat is diminished, irregularities of the beat are corrected, the pain of angina controlled and the level of blood pressure lowered. Beta blockers have also demonstrated usefulness in the treatment of phobias. (See section on "ANTI-ANXIETY MEDICATIONS".)

Side Effects. These are not uncommon. They may include numbness of the hands and feet, lethargy, lightheadedness, reduced appetite, vivid dreaming, and dry mouth and skin. Depression is an occasional side effect. Beta blockers should be avoided when there is a history of asthmatic attacks. Slowing of the heartbeat is usual.

Interaction with Alcohol. Moderate to heavy alcohol consumption while on these beta blockers may result in an excessive drop of blood pressure, associated with dizziness and fainting. Alcohol may increase the drug's moderate sedative action.

Calcium Channel Blockers (Calcium antagonists). These medications are relatively new on the American market. They include diltiazem (Cardizem), nifedipine (Procardia), and verapamil (Calan, Isoptin). Therapeutically they seem to do most things the beta blockers do (see above). They act by blocking the flow of calcium through the walls of certain cells, so that there is an improved flow of blood through the coronary arteries and a lessened demand for oxygen by the heart muscle. They have proven useful in the treatment of various forms of anginal pain and disturbances of heart rhythms. They may have value in treating high blood pressure and migraine headaches. While beta blockers (see previous section) may be contraindicated in the treatment of asthmatic and other breathing disorders, calcium channel blockers can, apparently, be used safely in the

presence of such disorders (and may even be helpful in certain kinds of asthma). Verapamil has been used experimentally in the treatment of manic-depressive disorders (often associated with alcohol abuse) with good results.

Side Effects. Tiredness is fairly common. Headaches, dizziness, nausea, skin rash, and swelling of the feet are rare. Most of these calcium channel blockers appear to have fewer side effects than the beta blockers.

Interaction with Alcohol. Calcium channel blockers tend to lower blood pressure and this effect may be increased when alcohol is consumed. Dizziness and faintness may result. However, except in the case of the elderly, one or two social drinks would probably not cause any problems, but caution is recommended. These medications should be used with caution in the presence of liver disease.

Note: There are a number of more or less promising antiarrhythmic agents undergoing trials but which are not yet approved (as of 1985) for clinical use, including Flecainide (Tambocor), Mexiletine (Mexitil), and tocainide (no brand name as yet).

D. ALCOHOL and ANTI-HYPERTENSIVE MEDICATIONS
(High Blood Pressure Medications)

These include the following: methyldopa (Aldomet), pargyline (Eutonyl), hydralzine (Apresoline), clonidine (Catapres), guanethadine (Esmil, Ismelin), prazosin (Minipress), minoxidil (Loniten), guanabenz (Wytensin), and a new and potent product derived from the Brazilian pit viper called captopril (Capoten). These drugs act in a variety of complex ways on the vasomotor centers of the brain and/or on the walls of the blood vessels to relax and enlarge their diameter and thus reduce blood pressure. The diuretics, beta-blockers, and calcium channel blockers are other major anti-hypertension medications.[11]

Side Effects. Postural hypotension, i.e., abruptly lowered blood pressure occurring upon suddenly standing that then may cause dizziness and fainting. Other side effects include tiredness, drowsiness, palpitations, headaches, diarrhea, nausea, reduced appetite, and occasional skin rash. Depression and reduced sexual potency occur occasionally. Minoxidil may stimulate the growth of facial and bodily hair in both men and women but this effect gradually disappears when the drug is discontinued. Minoxidil is a powerful anti-hypertensive drug but it has a rather high incidence of adverse effects including fluid retention leading to excessive weight gain and edema. Minoxidil should probably be used only when other effective anti-hypertensives have not produced satisfactory results.

Interaction with Alcohol. Alcohol tends to increase the blood pressure lowering effects of these drugs. This, of course, increases the possibility of dizziness, faintness, and fainting occurring. The drowsiness effect sometimes caused by the use of these medications is likely to be increased by the ingestion of a few drinks. Drinking and driving while on one of these medications can be especially dangerous.

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[11] For a more detailed discussion of these anti-hypertensive medications, see the chapters on "Alcohol and Heart Medications" and "Alcohol and Diuretics".

E. ALCOHOL and DIURETICS
("Water Pills")

Diuretics act on the kidney to induce loss of excess body water and salt. Diuretics are widely used in the treatment of high blood pressure. There are several classes of diuretics. The thiazide group includes the following products: chlorothiazide (Diuril, SK Chlorthiazide); bendroflumethiazide (Naturetin); benthiazide (Aquatag, Exna); chlorthalidone (Hygroton); cyclothiazide (Anhydron); hydrochlorthiazide (Esidrix, Hydrodiuril, Oretic, Zide); hydroflumethazide (Diucardin, Saluron, Salutensin); metolazone (Diulo, Zaroxolyn); methchlorthiazide (Aquatensin, Enduron); quinethazone (Hydromox); polythiazide (Renase); trichlormethazide (Metahydrin, Naqua). The "loop" diuretics (acting on the loops of the filtering system of the kidneys) have a greater diuretic effect than the thiazides. They include ethacrinic acid (Edecrin); bumetanide (Bumex); furosemide (Furaside, Lasix). The carbonic anhydrase inhibitors e.g., acetazolamide (Diamox, Cetazol, AkZol) are used in the prevention and treatment of certain forms of "mountain sickness" which may cause excess fluid in the brain and in the treatment of glaucoma. The potassium sparers (see next paragraph) include spironolactone (Aldactone, Aldactizide), triamterene (Direnium); amiloride HCL (Midamor) and amiloride combined with hydrochlorthiazide (Moduretic).

Side Effects. These include frequent urination, dry mouth and thirst, lightheadedness, headache, and drowsiness. The decrease in body potassium associated with the use of many of these diuretics may cause weakness, cramps, and sometimes heartbeat irregularities but much less frequently when potassium sparers are used. (However, potassium sparer diuretics when used alone are somewhat less effective as diuretics). Diuretics sometimes increase the level of blood sugar and can affect the treatment of diabetes. They also increase the level of uric acid in the body and thus contribute to the development of gout, as does the chronic use of alcohol.

Interaction with Alcohol. Diuretics, when mixed with moderate to large amounts of alcohol in the body, increase the likelihood of hypotension (lowered blood pressure) with consequent dizziness, faintness, and falling, especially with changes of position. The elderly are especially susceptible to these side effects.

A note on diuretics and premenstrual tension (PMS). PMS is characterized by nervousness, irritability, emotional instability, depression, headache, backache, and bloat. These symptoms usually occur seven to ten days before menstruation, and usually disappear during the first days of the period. The cause is unknown, but in part seems related to body fluid accumulation. Women who have a problem of alcohol abuse are more likely to drink at this time. The woman alcoholic should be questioned about the possibility of experiencing PMS and provided with appropriate treatment that may include the use of a diuretic.

F. ALCOHOL and STOMACH and DUODENAL MEDICATIONS
Prescription Drugs

Cimetidine (Tagamet). This drug blocks the action of histamine in the stomach, inhibits the secretion of acid, and thus promotes healing of the duodenal ulcer. It may also be of some value in the treatment of gastric, i.e., stomach ulcers. However, cimetidine is much overused in the treatment of all kinds of stomach upset.

Side Effects. These are not common but may include headache, occasional confusion, dizziness, muscle cramps, diarrhea, breast secretion in women, swelling and soreness of the chest in men, and rarely, diminished potency in men.

Interaction with Alcohol. One study found that therapeutic doses of cimetidine increased blood alcohol levels.[12] Subjects who were on cimetidine and had a few drinks were likely to feel more intoxicated than expected. Furthermore, alcoholic beverages (and caffeine drinks also) tend to increase stomach acidity, thus reducing the effectiveness of cimetidine, and delaying the healing of the ulcer.

Ranitidine (Zantax). This is a relatively new (1983) antihistaminic drug that also inhibits the secretion of stomach acid and thus promotes the healing of duodenal ulcers. However, ranitidine is said to be a more potent antacid and to have fewer side effects than cimetidine.

Side Effects. In general, similar to cimetidine, but less frequent and severe.

Interaction with Alcohol. As in the case of cimetidine, alcoholic beverages tend to increase stomach acidity and thus impair the effectiveness of ranitidine.

Sucralfate (Carafate). This drug acts differently from cimetidine and ranitidine and acts by forming a protective layer over the ulcer.

Side Effects. Except for the tendency to cause constipation, this drug has few side effects.

Interaction with Alcohol. Some authorities believe that this drug tends to protect the stomach from the effects of alcohol.[13]

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[12] Feely, J., Alastair, J., etc. Effects of Cimetidine on the Elimination and Actions of Alcohol. JAMA 247:2819-2821, 1982.

[13] Tarnawski, A. et. al. Comparison of Antacid, Sucralfate, Cimetidine, Ranitidine in Protection of Gastric Mucosa Against Ethanol Injury. Presentation delivered at Digestive Disease Week, Washington, D.C., May 23, 1983.

Nonprescription Antacids

These medications are widely used to treat stomach distress, commonly called indigestion or heartburn, with or without ulcer. These products are, of course, much less expensive. The principal or sole ingredient of any one of these medications may be aluminum hydroxide, magnesium hydroxide, calcium carbonate, or sodium bicarbonate. Examples of the many brand names of these products include AlkaSeltzer, Delcid, Dicarbosil, Digel, Equilet, Gelusil, Maalox, Maxamag, Mallimint, PeptoBismol, Trialac and Tums. These medications may be in liquid or tablet form.

Side Effects. These products may occasionally cause belching, constipation, and appetite loss. Weight gain is not uncommon with long-term use.

Interaction with Alcohol. Alcohol diminishes the antacid medication effect. Alcohol can increase gastric acidity and should be carefully limited in cases of gastric ulcer.

G. ALCOHOL and ANTICOAGULANTS
(Anti-clotting medications)

Anticoagulants. These include the coumarin group, e.g., dicumerol (Dufalone, Meltoxin), phenprocoumon (Liquamar, Marcumar), warfarin potassium (Athrombin K), warfarin sodium (Coumadin, Panwarfin). The indandione group (potentially more dangerous when given to patients who react adversely to coumadin) includes anisindione (Miradon) and phenindione (Hedulin). Anticoagulants are used to treat or prevent blood clots in veins and arteries in the body.

Side Effects and Adverse Reactions. Bleeding may occur occasionally, even when the dosage of the anticoagulant is conservative - perhaps causing nose bleed, bruising of the skin, black ("tarry") stools, or very dark colored urine. Back pain, bloating, and headaches are occasional.

Interaction with Alcohol. The effects of the anticoagulant are increased if a substantial quantity of alcohol is being consumed when the patient is taking the medication. This occurs because the alcohol slows down the breakdown or metabolism of the medication in the body. As a result, too much anticoagulant is in the body and bleeding may occur. However, a glass of wine or two at meals while on an anticoagulant does not seem dangerous.[14] On the other hand, the effects of the anticoagulant may be decreased when taken by a chronic alcoholic who may not be actively drinking at the time. This is so because the rate of breakdown of the drug is speeded up in the liver due to the changes in that liver resulting from years of heavy drinking - a kind of "cross tolerance." In this case, the anticoagulant disappears from the body too quickly. Therefore, less medicine is available in the body and more must be taken to prevent clots.

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[14] O'Reilly, R.A. Lack of Effect of Mealtime Wine on Oral Anticoagulants. Am.J.Science. 277:189-194, 1979.

H. ALCOHOL and ANTI-ASTHMA and OTHER RESPIRATORY MEDICATIONS

The Bronchodilators. These medications dilate the air tubes of the lungs (the bronchioles). They include the following: aminophylline-theophylline (e.g., Aminodur, Aminophyl, Corophyllin, Dixaminol, Mini-Lix, Somophyllin, Theodur); ephedrin (e.g. Amsec, Bronkaid, Calcidrine, Ectasule-Minus, Ephedsol, Nyquil, Tedral);epinephrine (e.g. Adrenalin, Epifrin, Primatene Mist, Sus-phrine, Vaponephrin); isoproterenol (e.g., Aerolone, Brondilate, Isuprel, Norisodrine); metaproteranol (e.g., Alupent, Metaprel); terbutaline (e.g., Brethrine, Bricanyl); albuterol (Proventil, Ventolin). The above mentioned drugs may come as tablets, capsules, suppositories, syrup, drops, and inhalants.

Side Effects. The commonest of these include nervousness, shakiness, headache, insomnia and fast, "pounding" heartbeat. These symptoms may diminish with use. The inhalant form usually does not cause these symptoms but occasionally may cause coughing and throat irritation.

Interaction with Alcohol. The non-inhalant form of these drugs may increase the nervousness component of the hangover or the more serious alcohol withdrawal condition. Alcohol may increase the tendency of these drugs to cause rapid and irregular heartbeat. Alcohol decreases the intended effect of many of these drugs, e.g., epinephrine, theophylline, isoproterenol.

The Corticosteroids. These include dexamethasone, hydrocortisone, prednisone, and prednisolone. These are natural or synthetic hormone substances. The older forms were effective in the treatment of asthma (and many other lung conditions) but have many side effects and are now used much less frequently. The newer corticosteroids have proven effective as sprays for the treatment of asthma, and in this form have few side effects. These new spray forms include beclomethasone (Beclovent and Vanceril) for the prevention of asthmatic attacks and betamethasone (Beconase and Vancerase) for the treatment of hay fever.

Side Effects. The old corticosteroids may cause mood changes (e.g., euphoria), increased appetite, weight gain, and nervousness. Other unwanted effects of these older forms when used in large doses over time include rash, depression, chronic fatigue, menstrual disorders, swelling of the feet, puffiness of the face, and impaired wound and ulcer healing. The newer steroid sprays, e.g., Beclovent, Beconase, usually cause no side effects except for occasional irritation of the mouth, nose, and throat.

Interaction with Alcohol. The chronic use of adrenal corticosteroids, when combined with heavy alcohol use, appears to increase the chances of developing gastric ulcers. With the exception of the sprays, these drugs tend to increase the nervousness factor of the hangover and the more serious alcohol withdrawal condition.

Cromolyn (Intal, Nasalcrom, Rynacrom). Cromolyn is neither a bronchodilator nor a steroid. It is more like an antihistaminic (antiallergic) substance. It does not stop the asthmatic attack but can prevent one when used as a nasal spray. It may be of value in treating hay fever.

Side Effects. Occasional hoarseness, nasal irritation, and cough.

Interactions with Alcohol. None.

Phenytoin (Dilantin, Diphenylan, Dihycon). This is the most commonly used medication in the treatment and prevention of idiopathic (cause unknown), generalized convulsions (grand mal epilepsy). While useful in the treatment of epilepsy, phenytoin is probably not effective in treating and preventing the kind of convulsions that occur only during the period of alcohol withdrawal - the so-called "rum fits." However, when in doubt about the nature of the seizures, phenytoin may be given.

Side Effects. There are usually no side effects with average treatment doses. Occasionally one or more of the following side effects may be experienced: skin rashes, mild dizziness and drowsiness, brown coloration of the urine, constipation, and nausea. In rare cases, there may be slurred speech and staggering gait (usually only in higher than average doses) that may be attributed to drunkenness. Nystagmus (rapid involuntary oscillation of the eye balls) may occur. The long term, higher dose use of phenytoin sometimes results in swelling and thickening of the gums. Hepatitis is a very rare adverse effect of phenytoin that may be mistaken for alcoholic hepatitis.

Interaction with Alcohol. Years of heavy drinking increase the body's tolerance to phenytoin. Indeed, the half life of the drug might be decreased by as much as 50% in the chronic alcoholic. In this case, ordinary doses become ineffective in controlling seizures. On the other hand, before this tolerance develops, heavy drinking may increase the blood level of phenytoin and hence the chance of developing adverse effects increases. Lower "loading" doses must be given.

Carbamezepine (Tegretol). This medication may be used when the epileptic patient with grand mal seizures (generalized convulsions) is not responding to phenytoin. It may also be used in the case of treatment for atypical epilepsy, for example, so called temporal lobe epilepsy, which is characterized by brief episodes of unremembered, bizarre behavior related to a biochemical abnormality of the temporal lobe of the brain. Carbamazepine is also used for the treatment of severe facial pain known as trigeminal neuralgia.

Side Effects. There may be no side effects, or the occasional patient may experience skin rash, headaches, blurred vision, drowsiness, nausea, dry mouth, constipation, and difficulty urinating. Carbamazepine can (very rarely) activate a latent psychosis.

Interaction with Alcohol. Carbamazepine may increase the sedative effect of alcohol. The drug should not be used in the presence of alcoholic liver disease (or any other liver disease).

Primidone (Mysoline). This drug is a chemical related to the barbiturates and is used in a variety of epileptic conditions.

Side Effects. Drowsiness, nausea, and mild confusion are not uncommon.

Interaction with Alcohol. Alcohol is supra-additive here and can markedly increase the sedative action of this drug in a manner similar to the barbiturates (see section on "ANTI-ANXIETY MEDICATION - The Barbiturates"). A bout of heavy drinking can impair the effectiveness of the drug in preventing seizures. Do not operate a vehicle, boat, or heavy equipment when on this combination.

J. ALCOHOL and DIABETIC MEDICATIONS

Diabetic medications include insulin given by injection and oral forms such as chlorpropamide (Diabinese, Chloronase), acetohexamid (Dymelor), tolazemide (Tolinase), tolbutamide (Orinase) and the new and potent glipizides (Glucotrol) and glyburide (micronase).

Side and Adverse Effects. Hypoglycemia (low blood sugar) can, of course, occur if the dosage of the diabetic medication is in excess of need. The symptoms of hypoglycemia include weakness, anxiety, hunger pains, sweating, dizziness, fainting, and possible coma. The side effects of the oral antidiabetics unrelated to hypoglycemia are not common but may include nausea, mild stomach distress, diarrhea, dizziness, headache, and very rarely, an "allergic" skin reaction. An antabuse-like diabetic medication reaction is a rare occurrence. This mixture may cause an uncomfortable reaction that has nothing to do with a drop in blood sugar but may be confused with a hypoglycemic reaction. Here the symptoms resemble the Antabuse-alcohol reaction including flushing of the face, headache, palpitations, sweating, chest pains, and shortness of breath. However, the blood sugar is normal and this is not a heart attack. In the susceptible person, this reaction may be brought on by a single cocktail or highball.

Interaction with Alcohol. Acute binge drinking while on insulin can result in a sharp drop in blood sugar, and death or serious and sometimes permanent mental impairment, can result. Chronic consumption of even moderate amounts of alcohol while on diabetic medications produces unpredictable effects, but includes the possibility of a severe and dangerous drop in blood sugar. This makes it difficult for the physician to estimate the appropriate doses of diabetic medications to prescribe. Also, the chronic alcoholic who is on oral diabetics is somewhat more likely to experience a hypoglycemic reaction even when not drinking at the time. This is partly because chronic heavy drinkers tend to have low levels of glycogen from which sugar is made in the body. The quadruple combination of being on the oral diabetic medication, a weight reduction diet, exercise, and having a few drinks, is especially likely to cause an abrupt drop in blood sugar, associated with faintness, shakiness, and sweating.

K. ALCOHOL and ANTIHISTAMINES
(Anti-allergy medications)

These medications include the following: bronpheniramine (e.g., Dimetane, Veltane), carbinoxamine (Clistin), chlorpheniramine (e.g., Chlortrimeton, Teldrin, Panahist), cyproheptadine (Cyprodine, Periactin, Vimacon), dexchlorpheniramine (Polaramine), dyphenhydramine (e.g., Benadryl, Nytol, SK Phenhydramine, Sominex), hydroxizine (Atarax, Vistaril),[15] phenyltoloxamine (e.g., Amaril, Naldecol, Sinubid), promethazine (e.g., Baymethazine, Histanil, K Phen, Phenergan, Phenerhist), tripelennamine (PBZ Pyribenzamine), and tripolidine (Actidil, Actifed, Aldafed). Terfenadine (Seldane) has been approved recently (1985) by the FDA. Unlike the other antihistamines, Terfenadine has little or no drowsying effect - a considerable advantage in treating allergic conditions in persons who must be sure that the medication is not impairing alertness. Antihistamines are useful for the treatment of allergic conditions, e.g. hay fever, hives, allergic rashes and the effects of poison oak. All antihistaminics except the new terfenadine have the ability to induce drowsiness and a mild degree of sedation. Hence, some are used as sleep medications and for their mild anti-anxiety effect. Some are useful in the prevention of motion sickness and as ingredients of cough and cold medications. Antihistaminics have little or no potential for producing physical dependency and addiction, although they may be habit forming.

Side Effects. All antihistamines except terfenadine (Seldane) tend to cause drowsiness to some degree. Mild nausea is not uncommon even though some (e.g., Benadryl) can help prevent motion sickness. Dry mouth sometimes occurs and can be relieved by drinking fluids or sucking on hard candy.

Interaction with Alcohol. Antihistaminics combined with alcohol increase the likelihood of drowsiness and lack of alertness. Driving a vehicle can be dangerous even if the driver who is taking the antihistamines has consumed an amount of alcohol that would not usually cause drunkenness. Terfenadine may be an exception.

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[15] Hydroxizine (Vistaril) has been used rather widely in the past as an alcohol detoxifying agent becasue of its mild sedative action and relatively few side effects. However, it is not sufficiently sedative to calm the more severe case of alcohol withdrawal.

L. ALCOHOL and ANTI-INFECTION MEDICATIONS
(Antibiotics)

Antibiotics are used in treating a wide variety of infections. Antibiotics include many types. Space does not permit an extensive listing or discussion of antibiotics and their application to numerous illnesses and conditions. The following outlines only a very partial listing of representative antibiotics: cephalosporins (Cefaclor, Cephaloglycin, Cephalexin); erythromycins (Erythromycins, Erythromycin estolate); penicillins (Amoxicillin, Ampicillin, Carbenicillin, Cloxicillin, Dicloxicillin, Hetacillin, Methicillin, Nafcillin, Oxacillin, Penicillin G, Penicillin V); tetracyclines (Demeclocycline, Doxycycline, Methacycline, Minocycline, Oxytetracycline, Tetracycline).

Side and Adverse Effects. Allergic reactions, usually in the form of a rash or hives are fairly common and usually disappear with a change of antibiotic or reduction of dose. Much more serious is anaphylactic shock -- a reaction characterized by a sharp drop of blood pressure, sweaty weakness, impaired consciousness, bronchospasm (an asthma like condition) and the very serious complication of edema of the throat. Diarrhea and nausea may occur occasionally at the beginning of treatment but these symptoms clear up spontaneously. Some antibiotics cause a sensitivity to the effects of the sun on the skin, resulting in severe sunburn. Discoloration of the teeth is a rare effect of some antibiotics.

Interaction with Alcohol. Alcohol, consumed in more than moderate amounts, tends to interfere with effective absorption by the body of penicillin and other antibiotics. The sulfonamide group of antibiotics may increase the intoxication effects of alcohol. The combination of even moderate consumption of alcohol and antibiotics increases the possibilities of stomach irritation. Alcohol is to be avoided if erythromycins or tetracyclines are prescribed. The combination can result in serious liver disease.

III. SPECIFIC DRUG TREATMENT OF ALCOHOLISM

A. ANTABUSE
(Disulfiram)

Antabuse, the brand name of disulfiram is a medicine that is used as a chemical "deterrent" to the drinking of alcohol. When a person taking Antabuse drinks alcohol, unpleasant and sometimes dangerous symptoms are experienced. These symptoms may include flushing of the face, headaches, palpitations of the heart, shortness of breath, weakness, dizziness, nausea, and vomiting. If large amounts of alcohol are consumed while on Antabuse, unconsciousness and rarely, death, may ensue. The Antabuse-alcohol reaction is caused by a substance in the body called acetaldehyde. Antabuse blocks the normal breakdown (metabolism) of alcohol to acetic acid and water at the point where acetaldehyde is produced; acetaldehyde accumulates and causes the symptoms described.

Antabuse and Patient Attitudes. The person who takes the daily pill should avoid drinking, since the effects of the mixture are not only decidedly unpleasant but cancel out the "value" of the drink for the drinker. The alcohol no longer provides the physical and emotional effects the drinker desires. He is not bedeviled by the familiar indecision: to drink or not to drink. He can get on with the business of living dry and putting his life together. Antabuse would seem to be a most important answer to the problem of alcohol abuse. However, the matter is not that simple. Many alcoholic persons refuse to take the pill. There are several reasons for refusal. The commonest is an unwillingness to close out the option to drink. The reason offered may be stated explicitly, or may be concealed from conscious recognition by familiar rationalizations. The word "crutch" is invariably used by those who are not yet ready to make the commitment. A few will contend that their compulsion to drink might lead them to the bottle even though they know the consequences of the mixture. Others refuse because they are worried about the rare adverse effects of the Antabuse itself. Some object because they are confident that they can achieve sobriety without the pill, and of course in many cases this confidence is justified. However, it is the author's experience that in the case of the serious problem drinker, a firm refusal to consider the use of Antabuse is usually associated with a doubtful outlook. A few patients have worked out a devious system of taking their Antabuse in low dose for a few days, say from Monday through Thursday, so that they can have a drink or two on Saturday or Sunday with a minimal alcohol - Antabuse reaction that many say is vaguely pleasant. However, this experiment rarely lasts for long and the drinker soon reverts to the more familiar self-destructive style of drinking minus any Antabuse. It should be emphasized that in proposing Antabuse treatment, the physician should never insist on its acceptance as a condition for further treatment of the alcoholism.

Prescribing disulfiram (Antabuse). Antabuse itself is a comparatively safe drug. There are not many absolute contraindications to its use. The medical consequences of continuing the use of alcohol (a notoriously toxic substance) are likely to be far graver than the effects of the Antabuse. However, if Antabuse is prescribed, there should be an initial evaluation

to rule out severe heart disease, severe hypertension, and advanced liver disease. There should be an explanation of the possible side effects, the occasional remote adverse effects, and a description of the symptoms of the Antabuse-alcohol interaction. The patient should be carefully instructed in the time relationships involved. There should be at least a 12 hour period of abstention from alcohol before starting Antabuse. The usual safe interval for the resumption of drinking after stopping Antabuse is about four days. However, the noxious reaction may be experienced to some degree in a few individuals for up to ten days or more. Frequently an initial dosage of one 500 mg tablet daily for a few days is prescribed, followed by half that amount, i.e., one 250 mg tablet daily thereafter. The patient should be instructed to avoid alcohol in disguised form, e.g., certain sauces, vinegars, cough mixtures (elixirs) and certain desserts containing rum, brandy, or liquors. Pamphlets providing lists of alcohol containing foods and medicines are available from the manufacturer of Antabuse.

Side Effects of Antabuse. Most persons experience no side effects from disulfiram when taken in the recommended dose. However, a very few may experience one or more of the following: mild drowsiness, headache, skin rash, indigestion, or a metallic or garlic-like taste. These side effects invariably disappear spontaneously during the first two or three weeks of use. If troublesome, the dose can be reduced. Taking the medication at bedtime obviates any concern about drowsiness and may be an incidental advantage in some cases. Impotence is a very rare side effect that clears up with discontinuance of Antabuse.

Remote adverse effects. Antabuse has been taken daily, in some cases for years, without evidence of adverse effects. However, in a very few cases the use of disulfiram has been associated with peripheral neuritis affecting the arms and legs and characterized by pain and weakness of the extremities. Optic neuritis causing reduced vision is exceptionally rare. (It may be noted that neuritis is not uncommonly associated with alcohol abuse in the absence of Antabuse treatment). Brief episodes of psychosis, usually in the form of confusional states, have been reported rarely with the use of disulfiram. Clearance of the confused state usually follows discontinuance of the medication.

Interaction with other drugs.

Anticonvulsants, e.g., phenytoin (Dilantin, Dihycon, etc.). Antabuse can greatly increase the amount of this medication in the body because it slows down the breakdown (metabolism) of these drugs. Toxic accumulation of the phenytoin occurs in just a few days of average doses. Even after discontinuance of Antabuse, it may require up to three weeks for the phenytoin level to return to normal. It is therefore necessary to adjust the dosage downward from the beginning of treatment.

Antituberculosis Medication, e.g., isoniazid (INH, Laniazid), rifampin (Rifadin). Antabuse increases the level of this drug in the body. The combination can cause unsteady gait and, occasionally, mental confusion. These manifestations clear up when the drug or the Antabuse is discontinued.

Benzodiazepines, e.g., Librium, Valium. Antabuse slightly increases the level of these drugs in the body and therefore their sedative effects are enhanced. However, oxezepam (Serax) with its short half life may be the drug of choice if needed for a patient on Antabuse.

Anticoagulants (Oral), e.g., warfarin (Athrombin K, Coumadin, Panwarfin). Antabuse can increase the level of these drugs in the body. This increases the possibility of bleeding unless the dosage of the anticoagulant is adjusted downward.

B. MEDICATION FOR INPATIENT ALCOHOL WITHDRAWAL

Some alcoholism workers believe that moderately severe alcohol withdrawal conditions, i.e., symptoms, somewhat more distressing than a bad hangover, but less than a serious delerium and/or with no serious medical complications, can best be treated in an inpatient setting without the use of detoxifying medications. Such facilities are referred to as social setting detoxification centers. This approach requires a staff of workers who are temperamentally qualified and have special training in this rather demanding mode. There is no doubt that this method of detoxification can be successful with a substantial number of clients. However, most workers in the field of alcohol detoxification believe that the experienced use of sedative medication can be effective, efficient, and safe in preventing needless discomfort and serious complications in moderate to severe withdrawal states.

The Benzodiazepines, e.g., chlordiazepoxide (Librium) and diazepam (Valium) (to a much lesser extent) are the most used detoxifying agents in this country. These drugs are as effective (if not more so) than most other detox medications, and certainly safer than most. Diazepam (Valium) is probably as effective as chlordiazepoxide (Librium) but has been criticized because of its somewhat greater tendency to encourage chemical dependency when used as an anti-anxiety drug. Detoxifying medications are usually taken orally. However, when the patient is unable to take medication by mouth, some of these drugs can be given intravenously (very carefully) or intramuscularly. The intramuscular injection of Librium, while a safer procedure than the intravenous route, has disadvantages because absorption by this route is slow and unpredictable and the drug might not be completely cleared for days. An exception is lorazepam (Ativan) which has recently become available for intramuscular (and intravenous) use and is almost completely metabolized in 6 to 8 hours after injection. Oxazepam (Serax) and alprazolam (Xanax) are two well known, short acting benzodiazepines that are not at this time available in injectable form but might be suitable for oral use. All of the benzodiazepines have anticonvulsant properties.

Alcohol (as a detoxification agent). The use of alcohol in gradually decreasing doses in order to come down off a binge is a common "home remedy" that can be effective. The problem is, that for most alcoholics, the "discipline" required is simply not present.

Antihistaminics, e.g., hydroxizine (Vistaril). This drug has been used successfully in the treatment of a mild to moderate withdrawal condition. It is quite safe. However, large doses necessary to control more serious withdrawal conditions may cause unacceptable side effects.

Barbiturates. Drugs of this class can be effective detoxification agents but have many drawbacks. Doses needed to detoxify may impair the functioning of the centers of the brain that control breathing and other vital functions. Excessive sedation is common with these drugs. Most barbiturates are broken down (metabolized) by the liver. Since the livers of most serious alcoholics do not function optimally because of damage done by heavy alcohol consumption over the years, barbiturates are not

properly broken down and the risk of oversedation increases. An exception might be barbital which is metabolized mainly via the kidneys and is fairly widely used in Europe for the purpose of detoxification. The dependency and addiction propensity of barbiturates is well known. Suicide by ingestion of barbiturates along with alcohol is still fairly common.

Clonidine (Catapres) is primarily an oral antihypertension drug and is also used in the treatment of withdrawal from opiates. It has also been effectively used in treating alcohol withdrawal associated with seriously overactive heart action, severely elevated blood pressure, and severe continuing tremors.

Paraldehyde. This agent is notoriously odoriferous and not particularly effective. Intramuscular use may cause local damage to nerves and sterile abscesses. Intravenous use may cause emboli. Gastric disturbances are often associated with its use.

Antipsychotic drugs (also called major tranquilizers). These include prochlorperazine (Compazine), haloperidol (Haldol), thioridazine (Mellaril), trifluperazine (Stelazine), thorazine (Chlorpromazine). The use of these drugs increases the possibility of seizures, undesired lowering of blood pressure, and with continuing use, serious neurological manifestations such as severe tremors, twitchings, and jerky uncoordinated movements. These effects are called "extrapyramidal" symptoms. Haloperidol (Haldol) may be used cautiously to help manage the very agitated patient with delusions and hallucinations.

Beta Blockers, e.g., propranolol (Inderal) may be useful in the treatment of the withdrawal condition when associated with heartbeat irregularities and/or severe tremors.

C. ALCOHOLISM and LITHIUM TREATMENT

Lithium (Carbolith, Eskalith, Lithance, Lithobid, Lithonate, Lithotabs, and Pfi-Lithium). This drug is widely used in the treatment of manic-depressive disorders and certain related disorders of personality. Lithium is neither dependency-inducing nor addicting (see section on ALCOHOL AND DEPRESSION, paragraph 4). The severe manic psychotic form of the condition is characterized typically by periods of seeming exhilaration, hectic hyperactivity, grandiosity, and pressure of speech. These "highs" may last for weeks or months and may alternate with periods of profound depression, withdrawal, agitation, and unfounded feelings of guilt and unworthiness. Alcohol abuse is especially common during the "high" period and may conceal the true nature of the condition. There is also a lesser, nonpsychotic form of the condition, often referred to as "hypomania" or "cyclothymia" or "emotionally unstable character disorder." The person's behavior may be notable for restlessness, impulsiveness, and emotional instability. There may be quick changes from sadness to happiness, and from irritability to tranquility. Invariably, there are more or less severe problems of social adjustment. There is certainly a strong propensity for alcohol abuse. It is probable that these conditions have an inborn or genetic basis. Lithium is highly effective in the treatment of the major, psychotic forms of the condition. It is also sometimes helpful in the treatment of the lesser, nonpsychotic character and behavior disorders described above. The abuse of alcohol often associated with these conditions usually moderates or ceases during lithium treatment.

Side and Adverse Effects. Commonly, the patient experiences no side or adverse effects, or experiences them only intermittently, especially when the effective doses are low. However, the following manifestations can occur, especially in the early phases of treatment: tremor of the hands, thirstiness, frequency of urination, and weight gain. Occasionally thyroid gland enlargement occurs - a benign condition that can be treated. In rare cases, lithium can initiate or aggravate psoriasis. Lithium toxicity, caused by doses above the usual therapeutic levels, usually comes on gradually over a period of several days. This toxicity may be manifested by increasing drowsiness, prominent muscle twitching, coarse tremors of the extremities, incoordination of movement, and slurred speech. The use of lithium over the long term may damage the kidneys. However, the majority of patients who have been on therapeutic doses for years do not appear to have suffered significant problems.

Interaction with Alcohol. Conservative drinking by a non-alcoholic while on lithium does not seem to cause adverse effects. Furthermore, there is some evidence that the use of lithium reduces the desire of the alcoholic to drink. If the alcoholic does drink while on lithium, he/she is not likely to become as inebriated,[16] but this in no way should be considered an encouragement to drink.

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[16] Judd, L., and Huey, L. Lithium Antagonizes Ethanol Intoxication in Alcoholics. Am.J.Psych 141:1517, 1984

APPENDIX

Summary Digest of Some Common Drugs That Can Have Adverse Effects When Combined with Social or Chronic Use of Alcohol

Interacting Drugs	Potential Adverse Effect with Alcohol
Anticoagulants (anti-clotting)	Decreased anticoagulant effect with chronic alcohol abuse. Increased anticoagulant effect with acute intoxication.
Antidepressants (tricyclicals)	Enhanced sedation, inhibition of intestinal movement, and fatty changes in the liver can be consequences of mixing alcohol with the medication.
Antidepressants (MAOs)	Elevated blood pressure reactions due to the tyrimine content of some alcoholic drinks, notably beer and wine and especially Chianti. MAOs also potentiate the effects of alcohol.
Antidiabetics (hypoglycemics - insulin)	Drinking large amounts of alcohol while on insulin can result in a marked drop of blood sugar (hypoglycemia). Drinking while taking oral diabetic medications can result in unpredictable blood sugar levels.
Antihistaminics (anti-allergy)	Enhanced drowsiness.
Benzodiazepines (anti-anxiety, e.g. Librium, Valium)	Alcohol tends to moderately increase benzodiazepam blood levels.
Carbazamapine (anti-seizure)	May increase sedative effects of alcohol.
Cimetidine (stomach ulcer pill)	Tends to increase the blood level of alcohol.
Digitalis (heart medication)	Alcohol can interfere with the normal breakdown of this drug in the body and cause dangerous accumulation of digitalis.
Major tranquilizers (e.g. phenothiazines)	Phenothiazines combined with alcohol can cause severe depression of the respiratory center of the brain, impair liver function, cause undesired lowering of blood pressure, and increase the possibility of seizures.
Nitroglycerin (anti-anginal medications)	Alcohol should be avoided in the presence of any side or adverse effects from nitroglycerine.
Phenytoin (anti-epileptic)	Alcohol in large amounts or with continuous use will reduce the effectiveness of phenytoin in preventing seizures.